

Clean Development Mechanism South Africa
Designated National Authority



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

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Project Design Document (PDD)

Project reference number (office)	
Date received (office use only)	

NOTES ON COMPLETING THIS PROJECT DESIGN DOCUMENT

1. Please provide this PDD in both hard-copy (one copy) and electronic formats (MSWord)
2. The information submitted to the DNA in this PIN will remain confidential.
3. Please ensure that all fields are filled in as far as possible to allow for proper consideration of the proposed project. Please indicate if information is not available for any particular item and reasons for the unavailability of information.

Part A: Project Proponent Details

Project Name	Installation of energy efficient ventilation fans at South Deep and Beatrix Gold Mines in South Africa
Date of Submission of PDD	2012/08/17

Project Developer	
Name	Nedbank Ltd GFI Mining South Africa (Pty) Ltd

Organizational Category	Mining and banking sectors
Legal Status	Limited company
Street Address	<u>Nedbank Ltd</u> 135 Rivonia Road Sandown Gauteng <u>GFI Mining South Africa (Pty) Ltd</u> 150 Helen Road Sandown Gauteng
Postal Address (if different from above)	As above
Website Address	<u>Nedbank Ltd</u> www.nedbankcapital.co.za <u>GFI Mining South Africa (Pty) Ltd</u> www.goldfields.co.za
Main Activities	<u>Nedbank Ltd</u> Banking <u>GFI Mining South Africa (Pty) Ltd</u> Mining
Summary of Financial Performance in last fiscal year	Confidential
Contact Person(s)	<u>Nedbank Ltd</u> Kevin Whitfield <u>GFI Mining South Africa (Pty) Ltd</u> Jan du Plessis
Telephone	<u>Nedbank Ltd</u> Work: +27 11 294 2268 Cell: +27 82 901 5846 <u>GFI Mining South Africa (Pty) Ltd</u> Work: +27 11 562 9935 Cell: +27 83 448 3737
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Project Partners	
Provide the following Information for all project partners (copy and paste relevant sections of the table if information is to be provided on more than one partner organisation)	
Name	N/A

Nature of partner	N/A
Organizational Category	N/A
Legal Status (if private company)	N/A
Street Address	N/A
Postal Address (if different to Street Address)	N/A
Website Address	N/A
Main Activities	N/A
Contact Person(s)	N/A
Telephone	N/A
Fax	N/A
Email Address	N/A
Contractual Arrangements	
Contractual arrangements between various entities involved	Nedbank Ltd will purchase the generated CERs.

Part B: Project Overview (Technical Summary, Location and Schedule)

Technical Summary of the project	
Objective of the Project	The purpose of this project is to reduce greenhouse gas emissions through the implementation of an energy efficient ventilation project in underground mining operations.
Project Description	
The project will reduce underground electricity consumption through the replacement of energy inefficient auxiliary ventilation fans with more efficient auxiliary ventilation fans. Up to 240 fans will be replaced in this project activity.	
Project Constraints	
No project constraints	
Technology to be employed	<p>This project will involve the replacement of these steel axial fans with more energy efficient axial fans. Though the new fan has the same electrical motor as the existing fan, the new fan has a different nose cone, tail cone, impeller, and stator to optimise the air flow through the fan. The barrel of the fan is also changed for a higher tolerance. Each new fan may be made of steel or composite fibre and is built to comply with South Africa's Department of Mineral Standards. The fans are developed using computer modeling and experimental testing. This method allowed the fan developer to optimise aerodynamic efficiencies, thereby maximizing energy savings.</p> <p>Though the composite fibre/steel fan technology is new, the technology is environmentally safe and sound as each fan is tested and compliance certified prior to installation. The new fans have also won a Technology Top 100 award - an award that is sponsored and accredited by Eskom, South Africa's national electricity provider.</p>

Technical Summary of the project	
Greenhouse Gases Targeted	CO ₂
Emission reductions	30,795 tCO ₂ e/year
Baseline & Additionality Assessment	<p>The baseline is determined using the product of the baseline energy consumption of the existing fans and the emission factor for the electricity displaced.</p> <p>This project will demonstrate additionality based on a lack of prevailing practice - more specifically, the project participant shall show that this project is a first-of-its-kind.</p>
Monitoring	<p>Electricity consumption of old fans (baseline)</p> <p>Electricity consumption of new fans (project)</p>
Type of project/activities	
a. Energy Supply	N/A
b. Energy Demand	Improves the energy efficiency of underground mining operations.
c. Industrial Process	N/A
d. Transport	N/A
e. Waste Management	N/A
f. Forestry/ land use	N/A
g. Other	N/A
Project Boundary	
The project boundary encompasses each ventilation fan that is installed.	
Indicate Emissions outside the Project Boundary	There are no significant and measurable net emissions of GHG that are attributable to the project outside of the project boundary.

Location of the Project	
Province	Gauteng and the Free State Province
Municipality	Carletonville and Welkom
Nearest city/large town	Johannesburg and Bloemfontein
Brief description of the location of the project site	<p>South Deep gold mine is located in the northern region of the Witwatersrand basin. The GPS coordinates of the entrance to the South Deep mining operation are 26° 25'S 27° 41'E</p> <p>Beatrix is the southernmost mine in the Witwatersrand basin. The GPS coordinates of the entrance to the Beatrix mining operation are 28° 15'S 26° 47'E.</p>

Project Schedule/Timetable	
Earliest Project Start Date	January 2013
When is the expected first year of CER delivery	2014
Project Lifetime	10 years
Project End Date	December 2022
Crediting Period	Fixed 10 year period
Current Status or phase of the project	Planning stage - project to be implemented in January 2013.
DNA Approval	No
Approval by other bodies	No

Part C: Performance Against the DNA's Sustainable Development Criteria

South Africa has identified the following sustainable development criteria and indicators against which each CDM project will be assessed. Please provide your interpretation of how this project will address each of these **criteria and indicators** where they are relevant to the project. If the space provided is not sufficient please append additional information as required.

NOTE: For all indicators which are of relevance to the project show how the performance of the project against these indicators can be objectively monitored and measured on an ongoing basis.

1. Economic: Does the project contribute to national economic development?

Eskom carried out planned electricity supply interruptions at the beginning of 2008. These interruptions were caused by the demand for electricity exceeding the supply of electricity. During the interruptions, grid electricity was not accessible. Promoting energy efficiency projects will reduce the pressure on energy infrastructure, thereby making important contributions to the country's economic sustainability.

2. Social: Does the project contribute to social development in South Africa?

This project will improve the working conditions at KDC East. The new ventilation fans will remove dust particles, dilute contaminants and move air to specific points underground, thereby improving the health and safety of mine workers. Personnel will also acquire additional skills as they will be trained on how to properly install and maintain the new fans. This project will create approximately 50 additional jobs.

3. Environmental: Does the project conform to the National Environmental Management Act principles of sustainable development?

i) That the **disturbance of ecosystems and loss of biological diversity** are avoided, or where they cannot be avoided, are minimised and remedied

There is no disturbance of ecosystems and loss of biological diversity in this project.

ii) That **pollution and degradation of the environment** are avoided, or where they cannot be altogether avoided, are minimised and remedied

There is no pollution and degradation of the environment in this project.

iii) That the **disturbance of landscapes and sites that constitute the nation's cultural heritage** is avoided, or where it cannot be altogether avoided, is minimised and remedied

There will be no disturbance of landscapes and sites that constitute the nation's cultural heritage in this project.

iv) That **waste is avoided**, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner

There is no significant waste in this project.

v) That the **use and exploitation of non-renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource

There is no significant use of non-renewables in this project.

vi) That the **development, use and exploitation of renewable resources is responsible and equitable**, and takes into account the consequences of the depletion of the resource.

The project will reduce electricity consumption from a predominantly coal-fired grid.

vii) That a **risk averse and cautious approach** is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions

A reputable electrical engineering firm is being used for project implementation.

<p>vii) That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied</p>	<p>The impacts on the environment are improved by implementing this project.</p>
<p>Other comments Please provide any other comments on how this project contributes to sustainable development in South Africa</p> <p>N/A</p>	

Indicators in Support of the Project Approval Criteria

	Category	Indicator	Comment
Environmental	Impact on local environmental quality	<ul style="list-style-type: none"> • Impact of the project on air quality • Impact of the project on water pollution • Impact of the project on the generation or disposal of solid waste • Any other positive or negative environmental impacts of the project (such as impacts on noise, safety, visual impacts, or traffic) 	<ul style="list-style-type: none"> • The project will improve air quality by reducing greenhouse gas emissions. • There will be negligible water pollution associated with this project • There will be no generation of solid waste, or disposal thereof in this project • The overall impact of this project on the local environmental quality is positive.
	Change in usage of natural resources	<ul style="list-style-type: none"> • Impact of the project on community access to natural resources • Impact of the project on the sustainability of use of water, minerals or other non renewable natural resources • Impact of the project on the efficiency of resource utilisation 	The project will reduce coal usage in South Africa.
	Impacts on biodiversity and ecosystems	<ul style="list-style-type: none"> • Changes in local or regional biodiversity arising from the project 	This project has no influence on the local or regional biodiversity.

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
Economic	Economic impacts	<ul style="list-style-type: none"> • Impact of the project on foreign exchange requirements • Impact of the project on existing economic activity in the area • Impact of the project on the cost of energy • Impact of the project on foreign direct investment
	Appropriate technology transfer	<ul style="list-style-type: none"> • Positive or negative implications for the transfer of technology to South Africa arising from the project • Impacts of the project on local skills development • Demonstration and replication potential of the project

The project will contribute to foreign reserve earnings for South Africa via the carbon credit sales revenue.

The project is replicable. The development of the programme offers the opportunity to establish a new industry within the South African economy.

Indicators in Support of the Project Approval Criteria

Category		Indicator	Comment
Social	Alignment with national provincial and local development priorities	<ul style="list-style-type: none"> • How the project is aligned with provincial and national government objectives • How the project is aligned with local developmental objectives • Impact of the project on the provision of, or access to, basic services to the area • Impact of the project on the relocation of communities if applicable • Contribution of the project to any specific sectoral objectives (for example, renewable energy targets) 	The project decreases the use of grid electricity and thus reduces greenhouse gas emissions. This will help reach the target the South African government committed to; the reduction of the country's emissions by 34% from business as usual by 2020.
	Social equity and poverty alleviation	<ul style="list-style-type: none"> • Impact of the project on employment levels? (specify the number of jobs created/lost; the duration of time employed, distribution of employment opportunities, types of employment, categories of employment changes in terms of skill levels and gender and racial equity) • Impact of the project on community social structures • Impact of the project on social heritage • Impact of the project on the provision of social amenities to the community in which the project is situated • Contribution of the project to the development of previously underdeveloped areas or specially designated development nodes 	The project will create 50 jobs in the implementation and monitoring phases of the project.

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
General	<ul style="list-style-type: none">Are the distribution of project benefits deemed to be reasonable and fair?	This is a green initiative by business and the distribution of benefits is deemed to be fair and reasonable.

Part D: Finance

Project Costs	
Development Costs (R's)	Not currently available
Installed Costs (R's)	Not currently available
Other Costs (R's)	Not currently available
Total Project Costs (R's)	Not currently available
Sources of Finance	
Equity	Not currently available
Debt (long term)	Not currently available
Debt (short term)	Not currently available
Amount not identified (R's)	Not currently available
Total CDM Contribution sought	Not currently available
Expected Price of CER in case of a contract to purchase for: A period of 7 years A period of 10 years A period of 14 years (2x7 years)	Not currently available
Indicate the projected Internal Rate of Return for the project with and without CER revenues.	Not currently available
Constraints on tradability of carbon credits	None
Preliminary discussions with potential purchasers	Nedbank Ltd will purchase the CERs generated by the project.